

REMARKS/ARGUMENTS

The Pending Claims

Claims 1-30 are currently pending. The pending claims are directed to fumed metal oxide particles and a process for producing the same.

Summary of the Office Action

The Office Action sets forth the following rejections:

(a) claims 1, 2, 6-9, 13-16, 18-19, and 23-30 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 5,075,090 (Lewis et al.) ("the Lewis '090 patent"),

(b) claims 10-12 under 35 U.S.C. § 102(b) as allegedly anticipated by the Lewis '090 patent or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over the Lewis '090 patent,

(c) claims 1-3, 7-10, 13-14, 17-18, 20, and 25-30 under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 5,340,560 (Rohr et al.) ("the Rohr '560 patent"), and

(d) claims 1-6 and 13-24 under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent 6,887,566 (Hung et al.) ("the Hung '566 patent").

Applicants request reconsideration and withdrawal of these rejections for the reasons set forth below. Applicants acknowledge with appreciation the withdrawal of the rejection based on WO 90/10596.

Discussion of the Anticipation Rejections

A. The Lewis '090 Patent

The Office Action rejects claims 1, 2, 6-9, 13-16, 18-19, and 23-30 as allegedly anticipated by the Lewis '090 patent.

The process for producing fumed metal oxides defined by rejected claims 1, 2, 6-16, 18-19, and 23-24 comprises providing a stream of liquid feedstock comprising a volatilizable non-halogenated metal oxide precursor, providing a stream of combustion gas having a linear

velocity sufficient to atomize and combust or pyrolyze the liquid feedstock, and injecting the stream of the liquid feedstock into the stream of combustion gas to form a reaction mixture such that the liquid feedstock is atomized and subjected to a sufficient temperature and residence time in the combustion gas stream for fumed metal oxide particles to form before the combustion gas temperature is reduced below the solidifying temperature of the fumed metal oxide particle.

The Office Action alleges that the Lewis '090 patent discloses a process for preparing metal oxide particles by introducing a precursor, which can be mixed with a carrier, into a combustion zone and combusting a gas to produce the metal oxide particles. However, the Lewis '090 patent discloses that the feed stream of the liquid organometallic compound is admixed with a hexane stream, at which time the combined solution is atomized (col. 4, line 64 – col. 5, line 9). Contrary to the Office Action's characterization of Applicants' arguments, Applicants do not dispute that the Lewis '090 patent discloses atomization of the mixture of the liquid feed and hexane. However, the liquid feed of the process disclosed in the Lewis '090 patent is not atomized *as a result of being injected into the combustion gas stream* as required by the pending process claims (see element (c) of claim 1 which reads in relevant part: "injecting the stream of the liquid feedstock into the stream of combustion gas to form a reaction mixture such that the liquid feedstock is atomized"). Accordingly, the Lewis '090 patent does not disclose the subject matter of the pending process claims.

The Office Action also alleges that, because the Lewis '090 patent teaches the claimed process, the Lewis '090 patent inherently discloses the product that results from the process as defined by pending claims 25-30. Thus, the Office Action's rejection of claims 25-30 based on the Lewis '090 patent is predicated on the assumption that the Lewis '090 patent discloses the claimed process. As discussed above, this assumption is incorrect. Accordingly, it cannot be presumed that the Lewis '090 patent inherently discloses the product of pending claims 25-30.

Because the Lewis '090 patent does not disclose the subject matter of any of the pending claims, Applicants respectfully submit that the anticipation rejection based on the Lewis '090 patent is improper and should be withdrawn.

B. The Rohr '560 Patent

The Office Action rejects claims 1-3, 7-10, 13-14, 17-18, 20, and 25-30 as allegedly anticipated by the Rohr '560 patent.

Claims 2, 3, 7-10, 13-14, 17-18, and 20 are directly or indirectly dependent on, and therefore include all of the limitations of, claim 1, which is discussed above in connection with the Lewis '090 patent.

The Office Action alleges that the Rohr '560 patent discloses a method of making fumed silica which includes feeding a silicon precursor material and oxygen and hydrogen into a combustion chamber. However, although the Rohr '560 patent indicates that the precursor material is in liquid form when fed into the chamber, it does not disclose that the precursor material is atomized when it contacts the oxygen and hydrogen in the combustion chamber (col. 3, lines 29-45). The Office Action mischaracterizes Applicants' arguments with respect to the Rohr '560 patent. Applicants do not argue that the precursor material must be atomized prior to contact with the combustion gas. Rather, what is required by the pending claims is that the liquid feedstock is injected into the stream of combustion gas to form a reaction mixture such that the liquid feedstock is atomized. Since the Rohr '560 patent does not disclose any atomization whatsoever (*see, e.g.*, col. 2, lines 3-7, 10-27), the Rohr '560 patent does not disclose the subject matter of the pending claims.

The Office Action also alleges that, because the Rohr '560 patent teaches the claimed process, it inherently discloses the product that results from the process as defined by pending claims 25-30. Thus, the Office Action's rejection of claims 25-30 based on the Rohr '560 patent is predicated on the assumption that the Rohr '560 patent discloses the claimed process. As discussed above, this assumption is incorrect. Accordingly, it cannot be presumed that the Rohr '560 patent inherently discloses the product of pending claims 25-30.

Because the Rohr '560 patent does not disclose the subject matter of any of the pending claims, the anticipation rejection based on the Rohr '560 patent is improper and should be withdrawn.

C. *The Hung '566 patent*

The Office Action rejects claims 1-6 and 13-24 as allegedly anticipated by the Hung '566 patent.

Claims 2-6 and 13-24 are directly or indirectly dependent on, and therefore include all of the limitations of, claim 1, which is discussed above in connection with the Lewis '090 patent.

The Office Action alleges that the Hung '566 patent discloses the production of a metal oxide (specifically, cerium oxide) by atomizing a cerium oxide precursor and introducing the atomized precursor into a high temperature reaction zone (col. 2, lines 7-15). The Office Action further alleges that the atomized precursor is a liquid feedstock as required by the pending claims. However, except in Example 4, the feedstock of the process disclosed in the Hung '566 patent is not atomized *as a result of being injected into the combustion gas stream* as required by the pending process claims (see element (c) of claim 1 which reads in relevant part: "injecting the stream of the liquid feedstock into the stream of combustion gas to form a reaction mixture such that the liquid feedstock is atomized"). Rather, as exemplified in Examples 1-3, the precursor is atomized and formed into an aerosol *prior to injection into the combustion gas stream*. Indeed, the Hung '566 patent describes various means for atomizing the precursor prior to injection into the combustion gas stream (col. 3, lines 50-65).

In the one example where the precursor is atomized as a result of being injected into the combustion gas stream, i.e., Example 4, the precursor was not a volatilizable non-halogenated metal oxide precursor as required by the pending claims. The isolated disclosure of Example 4, regarding atomization of a non-volatilizable metal oxide precursor as a result of injection into the combustion stream, cannot properly be combined with other disclosures in the Hung '566 patent regarding volatilizable metal oxide precursors to form the basis of an anticipation rejection. A reference does not anticipate a claimed invention if a person of ordinary skill in the art would have to pick and choose among a number of different disclosures in the reference to arrive at the claimed invention. See *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471, 1480, 1 U.S.P.Q.2d 1241,1246 (Fed. Cir. 1986) ("the

anticipatory reference must disclose in the prior art a thing substantially identical with the claimed invention”).

Because the Hung ‘566 patent does not disclose the subject matter of any of the pending claims, the anticipation rejection based on the Hung ‘566 patent is improper and should be withdrawn.

Furthermore, as noted in Applicants’ previous response to the Office Action of February 8, 2006, the Hung ‘566 patent may not be used to show that the claimed subject matter is obvious. The Hung ‘566 patent and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person, namely Cabot Corporation, as evidenced by the recorded assignments for the Hung ‘566 patent and the present application. As a result, the Hung ‘566 patent cannot be utilized as prior art under 35 U.S.C. § 103 against the claimed invention.

Discussion of the Obviousness Rejection

The Office Action rejects claims 10-12 as allegedly obvious over the Lewis ‘090 patent.

Claims 10-12 are directly or indirectly dependent on, and therefore include all of the limitations of, claim 1, which is discussed above with respect to the anticipation rejections.

The obviousness rejections are predicated on the assumption that the Lewis ‘090 patent discloses the process of claim 1. As discussed above with respect to the anticipation rejections, this assumption is not correct. Therefore, the Lewis ‘090 patent does not teach or suggest the subject matter of pending claims 10-12.


Because the subject matter defined by claims 10-12 cannot properly be considered obvious over the Lewis ‘090 patent, Applicants respectfully request withdrawal of the obviousness rejection.

Conclusion

Applicants respectfully submit that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the

prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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